# Lab 3

In this part, students will develop a mobile application for simple notification. The layout included will be shown below:

* Constraint layout
* Button

Here is the screen captures of application:  
  
Graphical user interface, application, Teams

Description automatically generatedGraphical user interface, text, application, chat or text message

Description automatically generated

Step 1:

In Android Studio, create a new project named Lab 3 with following project setting:

* Choose your project : **Empty Activity**
* Application Name : **Lab 3**
* Project location : use the default setting
* Language : **Java**
* Minimum API level: **API 21: Android 5.0 (Lollipop)**
* Click **Finish**

Step 2:

Define string values in **res/values/strings.xml**

<resources>  
 <string name="app\_name">Simple notification</string>  
 <string name="title">Mobile short course</string>  
 <string name="content">Enjoy~</string>  
</resources>

Step 3:

Open the **res/layout/activity\_main.xml** file and insert the following:

*<?*xml version="1.0" encoding="utf-8"*?>*<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="16dp"  
 android:layout\_marginTop="16dp"  
 android:layout\_marginEnd="16dp"  
 android:layout\_marginBottom="16dp"  
 android:onClick="onClick"  
 android:text="Button"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>

Step 4:

Right click the drawable file

New - > Vector Asset -> select the icon you want

Graphical user interface, application

Description automatically generated

Step 5:

Open MainActivity.java to add the following code:

public class MainActivity extends AppCompatActivity {  
  
 String NOTIFICATION\_CHANNEL\_ID = "my\_channel\_id\_01";  
 private NotificationManager notificationManager;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
  
  
}

Step 6:

After Android 8, the notification channel is necessary to created.

Add the code to outside the onCreate().

public void createChannel(){  
 notificationManager = (NotificationManager) getSystemService(Context.*NOTIFICATION\_SERVICE*);  
  
  
 if (Build.VERSION.*SDK\_INT* >= Build.VERSION\_CODES.*O*) {  
 NotificationChannel notificationChannel = new NotificationChannel(NOTIFICATION\_CHANNEL\_ID, "My Notifications", NotificationManager.*IMPORTANCE\_DEFAULT*);  
  
 *// Configure the notification channel.* notificationChannel.setDescription("Channel description");  
 notificationChannel.enableLights(true);  
 notificationChannel.setVibrationPattern(new long[]{0, 1000, 500, 1000});  
 notificationChannel.enableVibration(true);  
 notificationManager.createNotificationChannel(notificationChannel);  
 }  
}

Step 7:

Add the onClick() method outside the onCreate().

public void onClick(View v){  
  
 createChannel();  
  
 NotificationCompat.Builder builder = new NotificationCompat.Builder(this, NOTIFICATION\_CHANNEL\_ID)  
 .setSmallIcon(R.drawable.*ic\_baseline\_notifications\_active\_24*)  
 .setContentTitle(getResources().getString(R.string.*title*))  
 .setContentText(getResources().getString(R.string.*content*))  
 .setPriority(NotificationCompat.*PRIORITY\_DEFAULT*).setAutoCancel(true);  
  
 notificationManager.notify(1, builder.build());  
}